

CATS NEWSLETTER

**CAPITAL AREA TIMEX
SINCLAIR USERS GROUP**

**P.O. Box 467, Fairfax Station,
VA 22039**

**Volume 7, Number 1
May, 1989**

PRESIDENTIAL RAMBLINGS WELCOME

coming.

I would be remiss if I did not thank the talented members of CATS who have put an enormous amount of time and

unceasing efforts. I would also like to thank other members who are giving of their time to help out today and tomorrow.

Because this issue of our newsletter is also serving as the program to our Capital Fest, I would like to take this opportunity on behalf of the Capital Area Timex/Sinclair (CATS) Users Group to give you all a hearty welcome to our nation's Capital and our Fest. We hope your stay is a pleasant one.

We will do everything that we can to see that the Fest meets your expectations.

We are pleased to note that we are expecting attendees from all over the country and many from our neighbor to the north, Canada. Please make an effort to make friends among the other attendees; it is networking that keeps interest in Sinclair and Timex/Sinclair computing alive!

We are also pleased to have vendors and presenters from all over North America - please give them your support. We wish to thank them for their support of the Fest through advertising and their

effort since the middle of last year to make the Capital Fest a success. The following people made enormous contributions under the able direction of Audrey Curnutt, our Fest committee chairman: Stan Guttenberg (Fest committee treasurer), Bob Curnutt (Fest committee secretary), Mark Fisher and Steve Greene (BBS), Hank Dickson, Mike Warmick, Phil Russo, Ted Osheroff and others that I may have inadvertently omitted. I would especially like to thank Audrey for her tireless efforts and expertise because she pulled us all together and whipped us into shape. I would like to thank Vernon Smith, our CATS newsletter editor for his

We at CATS certainly hope that you enjoy the Fest!

Bill



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FROM THE EDITOR

● Excitement in the Air

By now I guess you're getting fed up with the myriad "fest articles" but you won't get any sympathy from me. You could, heaven forbid, write an article for the next issue. That is certainly one way of insuring that the newsletter contains something of interest for you. The CapitalFest is certainly the biggest thing that has happened to us, at least in the 4 years that I've been a member. If just half of what is planned, happens, it will be a memorable weekend. In addition to the Fest articles, you may notice that we seem to be carrying a great deal more about telecommunications, or as one of my friends says, "modeming". That's right and for a good reason. We now have a BBS and this area is one which we are late in embracing, yet its potential is too great to pass up. In this issue quite a few articles were downloaded (including Hank's CATS history article) from the board and this makes my job easier since they are already in ASCII format. For those who insist in sending me hard copy, why not use the board? Make your Editor happy. If you're not using the BBS because you're afraid of screwing up and looking stupid, our board is the most "user friendly" around and an excellent place to learn how to become a "modem maven"

● Excitement everywhere

Two events have occurred recently which, I feel, are of great significance. I know they excite me. That is the introduction of the "Solution", Digital Precision's MS-DOS emulator, and the 30 MB hard disk from Miracle Systems. I've looked at the Solution and comparing it to pc-ditto, the Atari MS-DOS emulator, it appears to be better. I say this because it can multitask, its easier to set-up, and (of all things) its documentation is better. Now if they can just get the speed up... I've always felt that the software available for the QL left something to be desired, if not in quality, at least in quantity. A

handful of outstanding QL programs come readily to mind but after that nothing. I guess the market was so small that many software developers passed it up to go for the big money in "Big Blue land". With The Solution that is all changed. Now software for the IBM will be usable on the QL, something that boggles the mind. The hard disk. WOW! I can't wait to plug mine in. I only hope that they have a decent set of utilities included. I guess I'll dust off my old boot program that loaded just about everything. It went in the drawer because it exceeded 720K. With the emulator, a hard disk really makes sense. Since some programs need lots of space, you may want to have separate compartments for different types of programs, or you have just become tired of swapping disks. For me this is like Christmas in April.

● Tim Woods, where are you?

I want to emphasize that the following commentary is my personal opinion and not that of the Executive Board or the CATS membership. Has anyone heard from Tim Woods, erstwhile Editor and Publisher of Time Designs magazine? While some West Coast types claimed to have copies of his September/October issue, my post card requesting my copy has gone unanswered. A newsletter indicated he had some problems but everything was behind him now and that the November/December issue was on the drawing boards. Well, my copies must have been sent by the Pony Express rider that got stopped by the indians. Another rumor is that Tim is publishing a Z88 magazine. If that's so and he's devoting his energies to that and turning his back on the rest of the Sinclair community, SHAME, SHAME! I've been ripped off and I don't like it. How can Tim expect to be called an ethical businessman when he doesn't answer his mail or fulfill his contractual obligations to the existing subscribers of

Continued on Page 18

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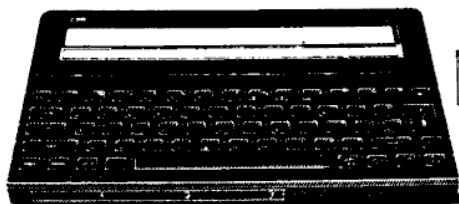
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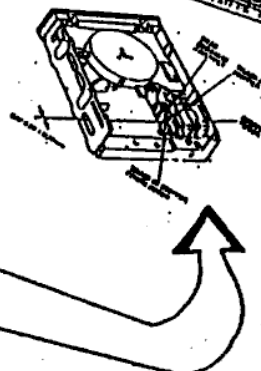
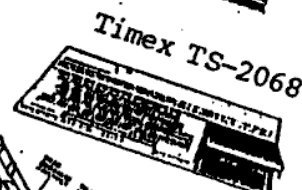
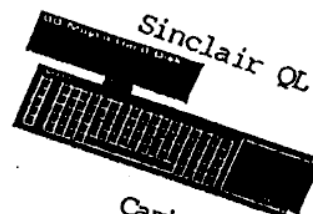
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Zebra Sellout

From John Pazmino

Zebra Systems are stepping out from the Timex-Sinclair business, but they have a boxcarful of all your fav and fab TS goodies. They're rolling that boxcar (actually a large roadvan) to the CapitalFest. They'll throw open the doors, stand back, and let you just buy them out. So, this is it, the Timex-Sinclair blowout sale of the decade. The Zebra TS Closeout. At the CATS CapitalFest. May 5-7, 1989. What ever is left over after the fest all goes to Arthur Kill. Now, you don't want THAT to happen, do you?

From: Bob Curnutt Re: QL parts shortages

The "PAL" chip is not currently available except by taking one from a "spare" board. The PAL chip is "IC-38", a 20 pin "DIP" located between the "JSU8000" and the "8302". Editor's Note: The 8301s and keyboard membranes are now available. The only other part in short supply is the keyboard bubble mat.



2068 To Real World Communications

by Mark Fisher

The "telecommunications revolution" has been roaring across America. For many Timex'ers in our little backwater, it seems to have roared right on by. This doesn't have to happen, however. You won't be overwhelmed by the swirl; in fact, many of the pleasures that keep us tapping away with our 2068's can be expanded, and many of the frustrations we run into can be easily dealt with by taking advantage of the capacities of the 2068-2050 MODEM combination.

While it isn't as easy or as obvious as using a word processor, if you can use a spreadsheet, you can deal with the information you need to know in order to use a MODEM. (In fact, it's positively easier than using a database program.) I'm going to cover the general area of modem use, with a concluding section on using the 2068's "native" modem, the 2050. Most of the steps are the same for any system, including the 1000 or QL.

• Basic Facts: Hardware

Telecommunications functions between two poles: the computers at either end. Between them stretches a pair of twisted copper wires, owned by the Ma Bell. While the computers may operate using the same (or similar) rules, the twisted pair operates under rules that were first developed a hundred years ago, and last really changed fifty years ago.

Standing between the massive parallel data bus of your computer and the copper wires in your wall are two electronic devices, each responsible for doing its share of translating your data into a format that can successfully travel along and through Ma Bell's network, with its microwave transmission, switch points, booster amplifiers, and miles of copper wire. In addition, these devices work in the opposite direction as well, transforming incoming signals into data you can read or use. The two devices are the serial port, and the MODEM itself.

• The Serial Port.

Your computer holds information as binary values. Each number it holds is

composed of eight bits, with each bit corresponding to a physical circuit, which is either on or off. The serial port takes the data from the parallel data bus of your computer, and "lines it up," taking the values on the eight bus lines, and funneling them in sequence onto the Tx line of the serial port. To keep the sequence from just being a meaningless cascade of bits, each byte is distinguished from its neighbors with stop and start bits.

I've gone into detail about the hardware details at this point because this transformation introduces the main variables you will have to confront before you can successfully communicate with another computer. The variables are:

1) The speed at which the bits follow each other. This is the familiar choice between 300, 1200, 2400, and 9600 baud you've heard tell of. BAUD can be thought of as "Bits per second."

2) The number of data bits sent in each chunk. While your computer can use data in chunks of eight bits, serial communications can use six or seven, as well. In fact, all the letters of the alphabet can be held in seven bits, and there are a fair number of computers you may want to "talk to" that will be listening for seven bits.

3) Parity checking. This was developed as a method of minimizing errors in transmission. IF you select parity checking, a bit following each byte of data will be modified to reflect the number of one's (marks) in that byte.

4) Number of stop bits. After each byte, a signal is sent that the byte is complete. This can be either as long as one, 1 1/2, or two standard data marks.

• The MODEM

After all the preceding us, you'll be pleasantly surprised to find that we're about past the complications. The MODEM (MODulate/DEMODulate) is basically a simple device by comparison. It's basic function is to change the serial information coming down the line as voltage states (DC voltage, suitable for short distances only) to a modulated

Continued on Page 10

steady tone than can leap mountains (and defeat Ma Bell's data-compression chopping circuits). Again, the reverse operation is also performed. The main variable you'll run into here is "originate" and "answer" mode. This refers to the two tones modems use to maintain steady two way communication. Some MODEMS will hunt between the two tones, and use whichever seems to work, but you should also know that you'll need to try both at times.

The 2050 MODEM is a single box that contains these two devices combined. Other hardware setups may have the serial port built into the coputer, or added to the computer's data bus. At times, even the MODEM is built into the computer.

• Using All of It

There is a third device to deal with here - the terminal program. (In the case of the 2068, the main program is Smartterm II. There are a number of later refinements, but none are widely distributed.) The terminal software is responsible for giving you control over the serial port and MODEM, as well as allowing you to deal with both transmission and reception of files. Smartterm II does both of these things, after a fashion. We'll walk through a typical session on the MODEM.

Assemble the hardware. This means plugging the modem into the back of the 2068, and the modem into the telephone line. Make sure that you've got a working phone on hand, as well. Load in Smartterm II. Some copies autoboot, while some others must be started with a RAND USR 54016. Either way, you'll see a lead off screen, saying something like "Enter number for autodial, or press ENTER". Press Enter to get the MAIN MENU. The main menu can be thought of as a sort of crossroads between the various specialized screens you'll be using. Press "S" to get to the "System Menu", and press the listed keys to change the word length to 8, stop bits to 1, and parity check to None. Press Enter to get back to the main menu, then "D" for the Data Menu. Here press the correct key to change the "CON"(ver-

sion) setting to "None". (The other settings are to allow easier file transmission in some circumstances.) Make sure the data buffer is empty, and open (pressing the appropriate keys.) Now "Enter" to get back to the main menu, and "enter" again to go to the main screen. This one will be a bit of a shock: it's blank. This is where your communications will appear. If you need to get back to the other menus, Shift- will get you there. This is possible, even if you're connected to another computer. Since you opened the data buffer, everything that appears on the screen will be saved in memory.

Press SHIFT-ENTER, to bring up the immediate command line, then type "m". DON'T PRESS ENTER YET! This command can "hang" until you're ready for it (soon). Now dial a BBS's number - how about 588-0579? Listen in, and when you hear the two-tone warble, press ENTER. This will send the "M"odulate command to the modem. you will immediately hear a matching warble from your end. Hang up, and "CONNECT" will appear on the screen. After a second, the CATS greeting message will appear on your screen, and you're off and running. If you start seeing garbage, use that Shift, 8, M to get back to the main menu, then S to change the system parameters. Make sure you're running 8 bit words, one stop bit, and no parity, then press ENTER twice to get back to the terminal screen.

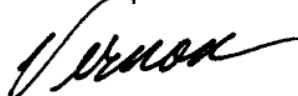
Once you're in, enjoy the bulletin board - leave a message! The only difficulty here is ending te message. The BBS requires a Control-C character to end a message. The 2068 doesn't have a "Control" key, but you can send the Control character by ressing SHIFT-7, then "C".

There are other ways to streamline MODEM use, but you'll learn these as you go along. The club BBS is on the air 24 hours a day, is rarely busy, and can withstand anything you do to it. You've got nothing to lose - try it.

Time Designs. Tim, if you're out there and reading this, send me my magazines or refund my money!

• Bits and pieces

As I indicated earlier, this issue has a slant toward communications. Maybe some of you will become interested enough to get on the BBS and join Fillipo Frati, Mark Fisher, Steve Green, Bob Curnutt, and me. If we can get enough interest, maybe we can get a group buy together for modems. Speaking of group buys, I still have some of the Keyboard anti-mouse chips. If you ordered them, please pick them up. Also look on the BBS for other "group buys." I put the group buy for the hard disks on the BBS and that's how Fillipo got wind of it.. In the past there has been a lot of accusations rolling around about people not getting the word soon enough to take advantage of the "deals". I think thaty this would be an excellent way to insure that this type of info got circulated between meetings. Also it is a great medium for those that can't make the Saturday meetings and I've found out that there are a great many tghat fit in this category. Off the soapbox and back to the issue... Read Hank Dickson's excellent history of CATS and find out how two kids, one a 6th grade girl, started what is considered by many to be one of the finest user groups in the US. Be sure to read Bob Curnutt's article on QL fixes. This is the first time all the "Tom Bent mods" have been committed to print. Over the past year many have asked when the QL fixes would be published. Now you know. I want to draw your attention to Steve Jonke's piece on the modaptor. I took it off of the BBS. He asks some questions and maybe one of you have the answer. Write me at the PO box or, better yet, put it on the board and share it with everyone. I hope you enjoy this issue and I'll see you at the Fest. I know that I'm looking forward to "putting faces on the names" of the people I've talked to over the phone during the last two years.



Nominating Committee Report

The Executive Board served as the Nominating Committee. The following is a report of the names that the committee is placing in nomination for officers for the fiscal year beginning July 1, 1989:

President Bill Barnhart (Incumbent)

1st Vice President Hank Dickson (Incumbent)

2nd Vice President George Rey (Incumbent)

Recording Secretary Ruth Fegley

Corresponding Secretary Joe Miller

Treasurer Open

The elections will be held at the June meeting. Nominations can be made from the floor at that meeting or by contacting a Board member prior to the meeting. The nominees must be CATS members and be willing to serve, if elected.

Proposed Corresponding Secretary Position

At the May meeting, the proposed new position of corresponding secretary was discussed and unanimous approval was given by the members present to finalize a draft of the necessary changes to the Constitution. The following are the revisions that need to be voted on at the June meeting to enable the creation of the position:

Amend Article Four, Section one. "Officers" [first sentence] to change the title "Secretary" to "Recording Secretary" and add the words "a Corresponding Secretary," immediately following.

Amend Article Four, Section Four. "Secretary" to be entitled "Recording Secretary".

Add Article Four, Section Six. "Corresponding Secretary" as follows: The Corresponding Secretary shall be responsible for receiving mail directed to CATS. The Corresponding Secretary shall be responsible for either answering the mail, if it is general in nature, or for routing to an appropriate member for a response and/or action. The Corresponding

ponding Secretary shall follow up on the routed letters to assure that they are answered promptly. The Corresponding Secretary shall be responsible for maintaining copies of all correspondence received, all replies to that correspondence whether generated by themselves or by others, any actions taken in response to correspondence and reviewing that correspondence with the Executive Board at Board meetings.

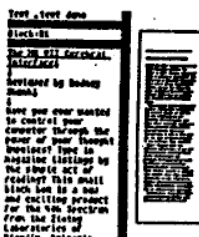
Spectrum Software Review

Reprinted from Sinclair User via ZX-Appeal, March 1989

WORD-MASTER AND TYPELINER

Cardex/£14.95 and £10.50

These are, I must say the most impressive pieces of software I've ever seen for the Spectrum. No kidding. The output of these programs, when put through an appropriate printer (and we're only talking Epson matrix with ESC "L" 120dpi graphics mode, here) is of such good quality that I had to look twice before agreeing that it could possibly have been originated on a Spectrum. *Word-Master* has been out for a while, and is a pretty good wordprocessor program in its own right (ho ho). But with the addition of *Typeliner*, an extension program which you load into *Word-Master*, it becomes a powerful page layout program. Using easily remembered single letter commands, you can position blocks of *Word-Master* text on an A4 page on screen, using boxes and lines, and a number of excellent and readable fonts. This could be your chance to get into publishing. Using another program called *Headliner* (unfortunately not available at time of going to press), you can paste graphics into your page, too. So you could conceivably use pictures grabbed using the video digitisers we showed you a couple of months ago, just to add an air of professionalism to the output.



Here's the *Typeliner* laying out a page. As you can see the A4 page is pictured on the right of the screen as a white rectangle, into which you physically lay the text files from memory. The boxes and columns are sized with the

cursor keys and the usual QAOP SPACE combo, which makes for very accurate shaping and positioning of blocks of text on the page. Page previews are available, letting you see how you're doing.

The program worked brilliantly on our office set up, which is quite amazing really, considering the fact that *nothing* works on our system, given the slightest reason not to! No crashes, nice bold output on the battered old Epson, and ease of page editing. Also, as well as some very nice fonts to play with, there's a font editor too, so you can either design your own fonts from scratch, or delete some of the less useful characters (/, (,), \$, %, etc...) to save memory. The grid on which you design the fonts is a massive 24 x 24, unlike the piddling 8 x 8 usual Spectrum font, which obviously makes for some more interesting typestyles.

There's a lot of work gone into this suite of programs, and in my opinion they're worth every nickel of the £35 you'll pay for the whole lot of 'em.

QL BANNER

by Tim Swenson

Originally printed in *Timelinez*, March, 1987

This is a little neatsy-keen program that I originally wrote years ago, on the ZX81.

The user types up to 10 strings of up to 80 characters each. The strings are then slowly "marched" across the screen, very much like the signs on Bart. The letters start on the right and scroll off to the left.

The screen that is used to show the banner can be fancied up a bit. Playing around with the stipple of the strips can be fun.

So, here it is. Have fun with it. It might come in handy someday.

```
100 WINDOW 512,256,0,0 : PAPER 0
: INK 4
110 DIM a$(10,80)
120 clear_data
130 set_screen2
140 get_all
150 set_screen1
160 REPEAT loop
170 FOR x = 1 TO 10
180 IF LEN(a$(x)) < 2 THEN NEXT
x
190 LET length = LEN(a$(x))
200 LET start_s=1 : LET
last_s=1
210 FOR y= 1 TO LEN(a$(x))+32
220 PAUSE 10
230 LET key=KEYROW(0)
```

To be continued next month

FIRST CLASS MAIL

The Capital Area Timex Sinclair Users Group

is a not-for-profit group devoted to serving the interests of those who own, use, or are interested in the Timex/Sinclair family of computers.

Executive Board

President	Bill Barnhart
1st Vice President	Hank Dickson
2nd Vice President	George Rey
Secretary	Mike Warmick
Treasurer	Ruth Fegley
Members at Large	Mark Fisher
	Phil Russo
	Bob Curnutt
Immediate Past President	Tom Bent
Editor & contact person	Vernon Smith (703) 978-1835

CATS maintains a gratis exchange of newsletters with approximately 30 Users groups across the U.S. Clubs not sending a n/l to us for six months are automatically taken off the list.

Meetings

Monthly meetings are held from 11 AM to 4:30 PM, on the second Saturday of each month, at the New Carrollton Public Library.

Newsletter

Memberships cost \$18 per year, are good for 12 months, and include all privileges (access to libraries, group buys, etc.). A newsletter subscription only is available for \$12 per year.

Networks

Timex SIG on Compuserve: Wednesday night, 10 P.M. Eastern time (GO CLUB).

Q2X BBS: (505) 522-7081 FIDO net 15, node 6. East Coast dial (703) 547-4815 FIDO net 18, node 9.

CATS BBS: (301) 588-0579. B-N-1. CapitalFest and general information. 24 hours a day.

QUEST: \$18 per year, per family

IF YOU ARE NOT A MEMBER OF CATS, THIS IS THE ONLY ISSUE YOU WILL RECEIVE

THE NEW CARROLLTON PUBLIC LIBRARY

18: New Carrollton Public Library

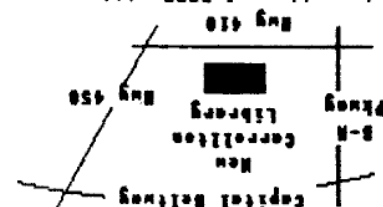
2:00 PM General Meeting

NO MEETING ON MAY 13

11:00 AM Hardware Workshop

Saturday, June 10, 1989

The next meeting of CATS will be held on:



Fairfax Station, VA 22039

P.O. Box 467

CATS Newsletter

A SHORT HISTORY OF THE CATS USER GROUP

(As the result of a personal request from AUDREY CURNUTT, CapitalFest Chairman, the following description of the history of CATS is submitted.)

The Lanham Sinclair Users Group (LSUG) was a direct antecedent of today's Capital Area Timex/Sinclair users group (CATS).

LSUG was the product of some enterprising work on the part of two Prince George's county students: Charley Dickson, then a 10th-grader at DuVal high school, and Cora Dickson, then a sixth-grader at C.T. Reed elementary school.

Cora had learned BASIC in classes given at the Howard B. Owens science center, situated conveniently between DuVal and C.T. Reed. Charley was a high school intern at the Owens science center, working after school on electronics for new science displays.

□ Dawning of the PC

In early 1982, as the personal computer age began to dawn, Cora and Charley seriously began looking around for ways to become involved in home computing.

Charley found an ad in an electronics magazine for a ZX-81 kit, priced at \$99. Cora agreed to tap her small savings account to pay for it, if Charley would put it together.

Soon a package arrived from a vendor in New England, and in two evenings Charley had the ZX-81 assembled and running. Both spent the spring and summer learning the idiosyncracies of Sinclair BASIC, developing some simple games using the ZX-81's 1K memory, and even doing using it for some math homework. Charley also eventually connected a full-size keyboard to the diminutive device, using a personally-designed interface.

As recipients of SYNC magazine, they noticed the existence of Sinclair user groups around the country, although there were none in the Washington, D.C. area.

□ Let's Do a Users Group!

The idea of a users group consisting mostly of students interested in Sinclair hardware and software seemed quite attractive. It could be a way to compare experiences and thoughts about numerous of topics relating to the world of Sinclair.

Based on this concept, flyers were produced and distributed announcing an organizational meeting in the conference room of the Greenbelt library. Word got around, however, and although the meeting was limited mostly to adults, attendees came from as far away as Potomac, MD.

Cora started out as chairman of LSUG, because she had paid for the computer. Charley was her executive backup and produced articles and drawings for the club's newsletter, "THE COMPUTER-IST", which Cora edited.

Larry Fox at the Maryland Book Exchange was a great supporter of LSUG from the beginning. At its apogee, his College Park Sinclair shop had one of the finest walk-in selections of hardware, software and publications to be found on the east coast.

Membership cards were printed and handed out. Cora's name and address began to appear in new lists of users groups. Letters and calls began to arrive from all parts of the country as well as overseas. Even last month a person called who had gotten Cora's name out of an old book and who was amazed to find that Sinclair support still existed.

Just as things were getting off to a slow, measured start, a small item appeared in the Washington POST describing LSUG, and immediately the phone went crazy. Attendance soared dramatically during the rest of 1982 and early 1983. The introduction of the TS-1000 during this period vastly increased the Sinclair user-base in the D.C. area, as well as all over the country.

As a spinoff, it was learned there was a group of ham radio enthusiasts which had been convening regularly at Phil Russo's home to pool interests in Sinclair computers. They were members of a large, Hyattsville-based amateur radio

club which had a long-standing interest in electronics and low-cost computing. The subset of that club which was interested in Sinclairs was called "PG-ZUG".

LSUG and PG-ZUG eventually tried to merge some activities while retaining their original identities. The LSUG meetings were moved to DuVal high school to accommodate the crowd, and PG-ZUG held alternate monthly meetings at the New Carrollton library.

□ Getting Wild

But by this time things things were exceeding even the wildest of expectations for a users group based on what many regarded as a toy. Also, what had been envisioned as an association of teenage students had become a group of adults worried about increasingly complex issues.

So LSUG dissolved in April, 1983, and returned all money that had been collected to that point. Cora and Charley continued on with a small "Sinclair Juniors" group that met occasionally for about a year at the Greenbelt library. However, travel problems proved too difficult for teen-agers not yet old enough to drive.

But a kernel of leadership had formed around the PG-ZUG nucleus, and eventually CATS was suggested as a name more descriptive of the regional nature of the group. Direction was provided by leaders such as Jules Gesang, Jim Wallace, Phil Russo, Mark Fisher and Sam Lefkov.

Before 1983 was over, Timex made a big holiday entry into the home computer market and CATS announced its new junta, headed by president Ned Beeler. Following him came a succession of equally outstanding presidents: Mark Fisher, John Conger, Tom Bent—and most recently—Bill Barnhart.

Support for these unselfish leaders came from the likes of Ruth Fegley, our peerless treasurer for many years; George Rey, coordinator of presentations; Bob and Audrey Curnutt, executive committee hosts and members; Ted Osheroff, keeper of the by-laws; Sarah

Continued on Page 4

Modaptor Plus problems

by Stephen Jonke

Taken from the CATS BBS

In looking through the manual of Q-code, I discovered a section on controlling the Modaptor Plus. It says that the modaptor can be controlled by sending a series of signals to pin 2 of the SER2 port (TX line). There are 4 different signals that can be sent: (1) HIGH-FREQ, which is a frequency of 4800Hz for 15 milliseconds; (2) T3.3, which is TX-high for 3.3 milliseconds; (3) T10, which is TX-high for 10 milliseconds; and (4) T5, which is TX-low for 5 milliseconds. In the section of the manual dealing with Miracle's modem for the QL (which has the modaptor built in to it), it gives the following Superbasic program to send TX a 4800Hz burst for 10 milliseconds:

```
BAUD 9600: OPEN #4,ser2i: PRINT
#4,FILL$(U,10): PAUSE 1: BAUD
1200
```

The last statement isn't necessary, that program happens to set up Miracle's modem for 1200 baud communications. The question is, what about this makes it a 4800Hz burst for 10 milliseconds? Note that the HIGH-FREQ signal required by the modaptor is the same except that it should last for 15 milliseconds. Also note that the character 'U' is 01110101 in binary, is their a significance to its choice in the PRINT statement? How can it be changed to be the HIGH-FREQ signal? Similarly, how can the T3.3, T5 and T10 signals be implemented - I assume that by "TX-high", just means that some number of 1s must be sent to TX - Is this correct, do you think? If we can figure out the answers to these questions, then we can use that knowledge to kick in the Modaptor for other terminal programs like Qlink. Those of you with old Modaptors with switches on the box don't have these problems now, but, if it needs to be replaced, you'll have to buy a Modaptor Plus and then you'll have to worry about it. Hope to hear from others.

Notes on the CATS BBS

by Steve Greene and Mark Fisher

★ The Setup

This is the first attempt at a BBS by the CATS Users Group. It is using the Casboard BBS software: 300 BAUD only at this time, using an 8-I-N protocol (eight bit word, one stop bit, No parity check).

★ Hints

Here are a few hints on how to use our BBS: (1) This BBS is a message-only BBS system, running on an unexpanded Timex 2068 with a Westridge 2050 modem. This means you can read and leave messages of up to about 500 characters in length (soon to increase, I hope). (Ed's note: See end of article.) As the message base fills up, the oldest messages will be edited out to make room for new messages. (2) Leave messages, inquiries, requests for help, etc... by selecting the <W>rite a Message option. (3) When writing a message, Control "H" sends a backspace. From Smartterm II, that's Shift-symb. shift-"7", then shift-symb. shift "H". (4) Remember to use 'Control C' to end your message, NOT A BLANK LINE. (5) The <S>croll option in <R>ead Messages is ***VERY*** powerful- it will display ***EVERY*** message in the base. You will not be able to break-out once a scroll is started, so BE CERTAIN that's what you want to do first!

Remember to keep this BBS happy, contented, and well-fed -LEAVE A MESSAGE!

★ Updates

Maximum message size is now—30000 characters, to allow transfer of articles to the newsletter editor. Chit-chat has been edited to make room- at this time there is about 11000 bytes of space.

CATS History—Continued from Page 3

Fisher, treasurer and newsletter editor; and Mike Warmick, TV cinematographer of CATS activities.

Newsletter editors over the years make up an elite group composed of Mark and Sarah Fisher, Jules Gesang, John Riley, and Vernon Smith, all of whose whose efforts have raised the CATS newsletter to unparalleled heights of national pre-eminence.

Tom Bent and his out-of-this-world hardware deals have made CATS the envy of every micro-electronic fanatic in the D.C. area.

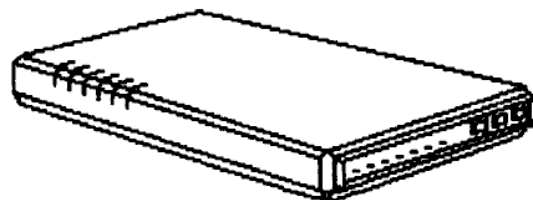
Under the sponsorship of CATS, brief computer literacy courses have been given to 10-to-14 year olds at seven P.G. county and two Montgomery county libraries. A similar course for adults was well received.

CATS has also given awards in the past to students from school science fairs in this area who have demonstrated outstanding achievement in the use of personal computer technology.

In addition, an annual fall picnic in Greenbelt park has become a social highlight for CATS enthusiasts who shed their bits-and-bytes orientation for at least part of one day to have a relaxing and enjoyable time with friends and family.

For the future, CATS can only hope to strengthen and build upon the base it has already established. Close to 1,000 computerists have passed through the portals of CATS during the past seven years; their ghosts should not be forgotten.

We need to assure that the spirit, enthusiasm, and sense of mission that a couple of young students brought to the birth of this entity do not get lost in the misty meanderings of our future.



Some Notes on the QL "Fixes"

by Bob Curnutt, with review and side comments by Tom Bent

The first definitive article on the "Tom Bent" mods

We have all gotten QL computers at salvage prices, entirely due to the rush into production 5 years ago. The majority of users seem to be able to adapt to the "system lockup" syndrome, but it has alienated thousands.

As far as I know, we at the CATS user group are blessed with the only QL expert this side of the Atlantic, Tom Bent.

Tom has run to ground the major faults, all tracable to hasty design. The last '88 issue of Quantum Levels details the simplest "cure" for voltage regulator overloading: the 20 ohm shunt (The first issue of Quantum Levels suggested doubling up on the original). BOTH are worthwhile starting fixes. I'd like to outline the others he has shared with our group at the "hardware sessions" which precede our regular monthly meetings.

• HELP IS AT HAND!

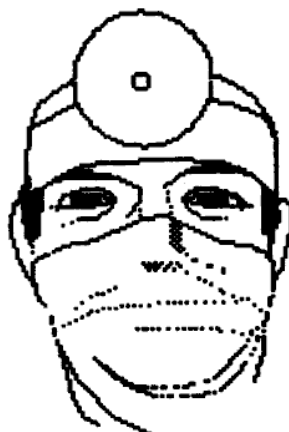
By the time you get this, the latest "Quantum Levels" should be available, and should have drawings and much more detail; this is written for those who don't have any other source, and may be about ready to scrap their crashing QL.

The following assumes only that you've done some soldering on P.C. boards, and do NOT have a circuit diagram or "Service Manual". The QL board is really not as delicate as you might assume; it is similar in quality to the ZX-81 and 2068. The following descriptions refer to the labels on the board, near each component, small but visible. All directions are referenced from the user's normal view, as through a clear keyboard. I hope you can do the following, and still have your machine work a little; then you can send it to Tom Bent and he MAY be able to do the final testing (outlined below) and return it with minimum effort.

First, the "cold" fixes, preferably on a machine which still runs up to the "F1/F2 menu". Remove top cover, saving screws in a safe place (label the

two nearest the right bottom foot MDV1 and MDV2, and leave them in place).

For this article, the "motherboard" need never be taken out of the case; if the power connector needs resoldering, or extra wire is to be added to supplement the sometimes anemic 5 volt power traces, then the board has to come out. I avoid doing this only because of the difficulty of reinserting the microdrives' ribbon cables, where you really need good thin. needle nose pliers.



Use fat nose pliers on the upper "ear" of the receptacle to hold it solidly while plugging in power connector; I've had to replace one of mine, since they eventually break off when bent back and forth too many times. The pins come out through the rear, incidentally, and are not all that hard to replace. I used standard "header" pins, 25 mils square, 5/8 inch long; sure, the originals are 25 x 40, but use gold plated pins!

After powering up, check the DC voltage with a calibrated meter at the leftmost pin of the regulator: 5 to 5.2 volts is nice. A quick check at the jumper wire to the 68008 may show 1/10 volt less. This may be due in part to R.F. on the line. Less than 4.9 volts may mean a defective regulator. Make sure there's a 0.1 mfd capacitor attached between the center and right hand pins; the factory provided a 0.47 mfd

electrolytic way down on the board, but it's several inches away. A really high gain regulator may oscillate with this much inductance in its input, which normally would cause it to shut down (your ZX-81/1000 could use the same treatment; apparently this is one of the parts left out for economy).

• Support your sagging 68008's power:

The insulated jumper between "IC-18" (the 68008) and the foil near "C5" (between J1 and J2) is at the END of the 5 volt trace(s), a foot away from the regulator. The "223" ceramic capacitor added between pin 13 (+5) and pin 35 (ground) needs help. A 10 microfarad, 10 (or more) volt tantalum type capacitor should be added in parallel; note that the "+" side should go to pin 13 (this may mean that the tiny labeling has to be faced down). Use a cap. with a diameter less than 1/4 inch or so, or the key board will press on it.

The straggly jumper can be replaced with solid #20 or smaller wire, with a ferrite bead or two slipped on for further isolation from noise. All holes in the board are big enough for #20 (0.032" dia.) wire, but with solder in them it sometimes seems they've closed up, even when hot. Use #22!

Note at the lower end of J1, pins 1-A/B are connected to a wide trace that should stop beyond DC-17; the later boards were made with a gap; if connected, cut yours here. (See below re.: 8049). This is part of the ground which promoted a bad "ground loop" condition, the MAIN problem with the QL.

Resolder the two upper (#30) solid wires from the "spiderboard", where they're often poorly soldered to the board. If the "spiderboard" feels the least bit warm in use, connect pins 1,3 and 5 to pin 14. This will tie the 3 unused gates "high" as per proper TTL practice (this is a "hex" inverter, half unused, CMOS at that!). Also connect a .001 mfd between pin 7 (ground) and pin 14, to short noise to ground. CMOS chips are supposed to run cool.

Continued on Page 6

While you're near the 8301 (IC-22), solder another .01 microfarad (or ".103") capacitor between pin 15 (+5 volt) and pin 6 (the only ground for the whole chip!). This is on the common side with the 68008; next, connect a .001 mfd cap. between the same pin 6 and the wire across the 68008 which connects it's pin 15 (ground) to pin 35 (ground on the side next to the 8301). This provides more shunting of "differential noise" between grounds to level them.

The "8049" is the 40 pin chip located at the lower right hand corner of the board, near MDVL. It is the Intelligent Peripheral Controller, and needs two capacitors, like the 68008. A 10 mfd, 10+ volt tantalum needs to be connected between pins 20 and 40, which are diagonally opposite; connect the "+" lead to pin 40 (closest to the 5

volt regulator); also connect a 0.1 mfd ceramic across this, fully bypassing this trouble spot. At this point, note if the trace between the 11 pin ribbon connector and pin 1 of the 8049 has been "factory" cut; most have, and it should be done. Some older machines (serial nos. below 1500) have not had this and other "fixes" done; I'm typing this on #1310, which had none of the "bandaids" (and never locked up). It now has all the "fixes" described here, and MAYBE never will. I believe the intermittency problem is due to small individual faults spread about throughout the board's population; find and replace the "bad" chip(s), to get a well behaved QL.

• NOW FOR THE HARD PART

There's one important above board fix left; it is one of the easiest to do, but most difficult to determine EXACTLY what to do! The big hitch is that inspection of the "data" lines from the 8301 (DB0 thru DB7) requires a 300 megahertz bandwidth oscilloscope (rise/fall times near 1 nanosecond). These data lines mainly carry video signals, so some experience with setting the trigger

levels is needed; you're looking for a 3 to 4 volt negative slope signal with a nanosecond fall time. The problem arises at the bottom end, where a volt or so of overshoot is DESIRABLE; 1.5 or more could mean trouble, 2 or 3 volts means the 8301 should be destroyed already! The excess overshoot is due to the sloppy ground returns, with the traces feeding the RAM chips at the far right



from the 8301 (IC-8, IC-14, IC-15) putting the most noise on the rest of the "bus".

Tom Bent's fix is very simple: attach PROPER sized capacitors between each affected RAM chip's pin 14 and pin 8 (+5 volt). This slows down the

falling signal without overly slowing the original rise to +5. Too large a capacitor doesn't crash the machine immediately, but the fall time can become so long as to make the "fall" a long ramp; don't remove all overshoot! It's a sign that the system is running at maximum speed.

A few specifics: DB0 is associated with 8301 pin 14, DB1 with pin 16, DB2 with pin 19, DB3 with pin 21, DB4 with pin 23; these have fairly well matched lines to ground and are the ones to compare to lines 5,6,7. DB5 is on pin 25, DB6 is on pin 26, DB7 is on pin 29. DB6 has the worst matched line and can be 2 volts when the first 3 are .7 volts. It takes some experience to determine how much capacitance to add, typically 50 to 390 picofarads (I recommend 220 to 270 for all machines.-TB), in proportion to excess overshoot. Where to put them: to correct DB4, IC-13, (pins 8 to 14); for DB5, IC-14; for DB6, IC-15; for DB7, IC-8 or IC-16. All receive little caps. between pins 8 and 14.

My experience doing this is extremely limited, #1310 needed NO caps., although I started with 100 pfd on IC's 14, 15, and 8. This made finding the signal very difficult, at first, although the machine previously seemed to work O.K. My other attempt was with #2499, which took 100pf on IC-15 (to take care of DB-6); the rest were good enough.

That machine has always had a screen/keyboard freeze problem, usually 20 to 40 minutes after turning on, rarely repeating later after warmup. It still does this! (Bring it to the workshop & let's check it out Bob!!)

• EQUIPMENT NEEDED

The 'scope I used was, naturally, at work. The equipment is over 10 years old, and would not readily be found outside a laboratory. This is the amateur repairman's biggest problem. The only "surplus" type I would look to borrow would be a Tektronix Type 519, but this may be difficult to use. It IS a gigahertz machine, but large, with heavy power supply, this assuming everything works. (The Tek 517 is only a 50 megahertz box, equally large and heavy, but probably available and maybe cheap!).

Tom Bent brings a borrowed H-P 1720 type to our meetings; it's small and can be carried with one hand (also 10+ years old, cost \$4+ thou. THEN). I used a TEK 7904, with a 7A19 (50 ohm) vertical amp. and a 7B92 time base. Most importantly, a P6201 (FET) probe was available; DON'T try to connect a 50 ohm load to the these lines. The computer will have to be unplugged to reset it!

Actual measurement with this high powered equipment was easy, once "technique" was worked out. I highly recommend soldering short stubs of wire to each of the 8 pins beforehand, so the probe can be clipped on and let alone while diddling the scope's many controls. Where to connect the ground clip may be a problem; put a longer stub on pin #6 (this is the sixth one down on the left side, looking from above; I've assumed that everyone knows that you count pins from the dot or with notch end down, left side, bottom to top, sort of clockwise, like vacuum tubes, etc., viewed with pins pointing toward you).

In closing, I must refer you to Tom Bent, who prefers having machines sent to him needing only a small adjustments, rather than basket cases. I hope the foregoing does not push his spare time work in the wrong direction!

CAPITALFEST

Program Guide

Welcome

Hello and welcome to the 1989 CATS Capital Area Timex/Sinclair Fest.

This is our first computer fest. It's also the first computer fest for Timex and Sinclair computers in the Northeast Corridor. We're looking forward to it, and with your help it will be a success. TS users have always been good for a party, so get in the swing!

If any questions arise, look for the distinctive CATS headgear of the "Central Committee." We'll be available during the fest and evenings if you should need to speak to someone on any matter concerning the fest.

We're also very appreciative of the numerous vendors that have shown their commitment to TS users and this Fest by purchasing tables. It's made our load a little lighter, seeing how many fellow enthusiasts are still committed to TS computing. As the number of vendors shrinks it is becoming even more important to support them.

Like the vendors, it is the attendees from across the country and across the border that will make this Fest something to remember. It's YOUR commitment and time that will make this a great Fest. We would like to extend a special welcome to our fellow TS users from Canada who have traveled so far.

To reward you for your attendance, we are presenting a comprehensive set of lectures and seminars including the ZX81 through the Z88.

Buy, discuss, and Enjoy!

SCHEDULE

Times of events are subject to change as conditions warrant, so keep tuned to announcements as the Fest progresses.

Please wear your name badges so that we may all get to know each other on a

first name basis.

Door Prizes will be awarded each hour on the hour.

☞ **Friday, May 5, 1989**

7:00 PM Banquet (This is a great opportunity to meet each other before the hectic pace of the Fest begins on Saturday.)

☞ **Saturday, May 6, 1989**

7:00 AM — Gates Open

9:15 AM Bill Barnhart, President of CATS will speak for a few minutes

10:15 AM Al Boehm, "Computers and Weather"

11:15 AM Tom Bent, "Making the Most of Your QL"

12:15 PM — Lunch Break

1:15 PM Dr. Larry Sheingorn, "Office Use of the ZX-81"

2:00 PM — Flea Market opens

2:15 PM George Rey, "An Application in Easel"

3:15 PM Dave Bennett, "Applying the Z-88"

4:00 PM — Flea Market closes

4:15 PM Nigel Searle "Sinclair: Past and Present"

5:00 PM — Close the show for the day

8:00—Until... Hospitality room

☞ **Sunday, May 7, 1989**

9:00 AM — Open Gates

9:15 AM Judy Muir on the TS1000

10:00 AM — Flea market opens

10:15 AM Vernon Smith, "Using the Desktop Publisher"

11:15 AM Mark Fisher, "The 2068 and More BBS about Modems"

12:15 PM — Lunch Break

1:15 PM Peter Hale, "Making the most of Abacus"

2:15 PM Will Rieger, "Using the Delta Device"

3:15 PM Tom Bent, "Hacking and upgrading the QL"

3:30 PM — Flea Market closes

4:00 PM — Start the Clean up and Close the Show.

Have a good time!!

BIOS OF THE SPEAKERS AND USERS GROUPS

WEATHER SIMULATIONS ON SINCLAIR COMPUTERS

by Al Boehm, ST Systems Corp.

Complex simulations of cloud scenes and aviation weather that are now used on such large systems as the Cray, were originally developed on the ZX-81, T/S 2068, and QL. Many of the original algorithms are quite short and adaptable to other uses.

Making the Most of your QL

Tom Bent Editor, Quantum Levels

Tom has been delving into the QL for some time. In his first of two talks, he will discuss what you can do to apply your software to task and coordinate your computer needs to make maximum use of your QL. In a multitasking computer such as the QL, the problem of getting various software or multiple machines to work together becomes tricky. Properly utilizing toolkits and other SuperBASIC extensions can ease this burden and really make the QL a fascinating tool.

"Sinclair; Past and Present"

by Nigel Searle

Mr. Searle has a long and close relation with Clive Sinclair and Sinclair Computers. He served as the marketing arm (and brain) of Sinclair Research for many years. His personal recollections of life in the "OLD DAYS" will make this a talk you won't want to miss.

SOUTHWESTERN PA USER'S GROUP

Ralph Vasko and Judy Muir

This is a group that covers an area of four counties, with 60+ owners (about 25 active). They meet several times a month in various locations, from a machine shop to a health center. None of their S.I.G.'s have dues or a newsletter for the Sinclair users. They do have a member from the UK that spends most of his time on this side of the pond, but does bring us news on the Cambridge scene; hence the title of a column that Judy Muir sometimes has in local computer publications: "NEWS FROM A BROAD". She also writes using the heading: "BiT/S n' PC's", for other T/S tidbits. Stop by their table and chat a while.

Judy Muir, ZX-81

"The ZX-81—DOES A DOUBLE TAKE": Hardware and software developments of yesterday, today, and tomorrow.

WOOD AND WIND

COMPUTING: Business and Educational programs for the QL. DBTutor: A Learning Shell for the QL.

A program designed to help you learn any subject of interest to you. Perfect for courses you or your family may be taking or for self studying on your own. The program covers all aspects of creating your own study databases, doing drills, printouts, and backups. Use it for as many subjects as you like. It runs within PSION's ARCHIVE but does not require knowledge of ARCHIVE commands. Comes with a 25 page manual that covers all the details of

using it with several sample data bases. Versions for all configurations of QL's.

A \$5.00 discount off the regular price during the Fest.

Please come by my booth for a demonstration.

Desktop Publishing

by Vernon Smith, CATS

Vernon is Editor of the CATS newsletter and in that capacity has been involved with the various dtp programs that have been introduced for the QL. His talk will cover the production of a newsletter from start to finish, with a concentration on the use of Desktop Publisher from Digital Precision, with hints on making it work and overcoming its limitations. Closing with a comparison of dtp programs for the QL and other machines.

Office Use of the ZX-81

Dr. Larry Sheingorn, Ophthalmologist
Rockville, MD

Dr. Sheingorn has been using his ZX-81 for many years to keep tabs on his business. A past article in a "Time Designs Magazine," brought our attention to the talent that we have in our own backyard. Using BASIC, Larry has developed a software program called "Daysheet" to keep a running total of patients that are served in one day, what care was rendered and what charges were made.

A Memotech keyboard replaces the ZX-81's membrane. A Memotech Centronics interface and a Byte-Back 64K ram module round out the ZX-81 shell, creating a very pleasant working tool.

"An Application in Easel"

George Rey

CATS, Washington, DC

"Sure Easel makes pretty pictures, but can you really DO anything with it?" Mr. Rey will cover the development and use of Easel to make sense of the dry tables of Abacus. He's got real applications, not just "Aunt Millie's wedding", and an engaging way of bringing you along with his thoughts.

SINCUS

1229 Rhodes Road Johnson City, NY 13790

\$8.00 a year for 6 issues

President: Clyde Tackley

Secretary: Paul Hill

Sincus is a very active group in the New York Area. They will be selling one of their copyrighted programs and copies of a special series of articles on the 2068 in print on an Olinger/Larken disk.

Clyde Tackley and Paul Hill are at the Fest giving away copies of Sincus News. Drop by their table and see what they have to offer.

SMUG Sinclair Milwaukee Users Group

P.O. Box 101 Butler WI 53007

President: N. Schultze

Education: R. Cultice

\$10.00 per Year

SMUG is another users group that we have exchanged newsletters with for a long time. This group will sell digitizer boards for the 2068.

We don't know how many members are attending the fest but we do know D. Coultice is. Do a little visiting at their table and you may be surprised at what they have.

The Ramtop Greater Cleveland Sinclair Users Group

12706 Lecila Avenue Cleveland, Ohio 44135

Treasurer: Robert L. Parish \$15.00/year \$7.50/6 months

This is the group that put on the 3rd Annual Midwest Timex/Sinclair conference in August '88. The Greater Cleveland group has a very good BBS and puts on nice displays at the computer shows. A large group of members are attending the Fest. What do they have this time? Stop by their table and see!!

Hacking, Upgrading and Repairing your QL or: Brain Surgery Self Taught

Tom Bent Editor, Quantum Levels

This talk will be geared toward opening the QL and discovering what is right and what is wrong with it. Tom has discovered a few quirks and solved the reliability problem that plagues some QL owners. This lecture will show you how to turn a good QL deal into a great QL deal. You do not have to be a hardware whiz to derive vital information that will keep your QL running into the next century.

"The 2068 and More BBS about MODEMS"

Mark Fisher, MA

CATS Users Group, Washington, DC

Have you ever shied away from using a modem with your computer? The 2068, and the Timex 2050/Anchor Automation/Ed Grey Special MODEM, combine to provide the T/S enthusiast with a very economical way to learn the ins and outs of telecommunications. The materials are simple and easily assembled, while their operation is as straight forward as most telecomm systems.

Sources of hardware will be discussed and shared among the attendees. Sources and alternate versions of software will also be covered, as well as basic operation of that ol' mainstay, SmarttermII.

GEORGE REY TALKS ABOUT INTER-CLUB EXCHANGES

We all want to see the Timex-Sinclair users groups around this country and in Canada survive. But some of us aren't as efficient as we need to be and perhaps there are some things which can be done to make survival easier.

George Rey has been talking with Mike Warmick for the past year about inter-club exchanges of one kind or another.

It would be a good idea at Fest-time to think about some of the things we can still do:

- Exchanging newsletters with other T.S. clubs. This is something we are doing now which is both economical and effective.

- Why not put some effort into formalizing our own presentations on videotape? They could then be exchanged with other clubs.

- A special video arrangement could be made using Prince Georgians On-Camera, a local cable access group.

- Special tapes could be created when special topics (e.g., hardware modifications) come up. CATS could exchange, loan, rent, or sell them.

- Video exchanges could be a topic of discussion at the Fest.

- Why not plan ahead for next year? How about coordination of sites for yearly fests? Perhaps SNUG can do this?

- Why not have occasional joint Executive Committee meetings with other D.C. area users groups which also are orphaned? Or maybe even semi-annual general membership meetings with some of the other orphaned user groups?

Lets keep a dialogue on this alive and running so that next year at this time our bonds with other user groups—T/S in particular and home-hobbyists in general—will be stronger than ever.

QUANTA

QL Users and Tinkerers Association Independent QL/Thor Users Group

Worldwide Membership is by subscription only and offers the following benefits:

Monthly Newsletter (up to 40 pages)
Massive Software Library - Mostly FREE
FREE Helpline- Workshops - Bulletin Board
Regional Sub-Groups - one near you?
Advice on Hardware & Software problems
Discounts from most major suppliers
Subscription just £14 for UK members
Overseas Subscription £17
Barclaycard - Visa - Access - Mastercard

Further details from the Hon. Secretary:

PHIL BORMAN,
15 GROSVENOR CRESCENT,
SOUTH HUMBERSIDE,
DN32 0QJ
Tel: (0472) 49850

CAPITALFEST FLEA MARKET RULES

The Flea Market will be open on Saturday from 2:00 PM until 4:00 PM and Sunday from 10:00 AM until 3:30 PM. To sell your wares at the Flea Market, you must:

1. have purchased a ticket
2. have computer related items for sale
3. price all items.

You collect your own money, and are responsible for your own merchandise. CATS takes 0% in fees. Everything must be left clean and removed from the room at 4:00 PM on Saturday and 3:30 PM on Sunday. If you don't sell it, take or find a home for it.

Have a good time!!

EMSoft
Software for the
QL
that really works

We produce some of the most
useful software for the
Sinclair QL in North America

It does real work - no games
it is often tax deductible.

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recipe file.

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Contact us at the show or at
the address or phone below.

We have software for the
TS1000 and the ZX-81,
including a 4K wordprocessor
that prints lower case
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or any other printer.

Drop by the **EMSoft** table at
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WMJ

HAD TO CANCEL

PLEASE
PICK UP A
CATALOG

AT THEIR TABLE

WMJ

ZEBRA

SELLS OFF 2068 STOCK

AT
CAPITALFEST

BRING CHECKBOOK

DROP BY TABLE FOR
BARGAINS!